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SHORT REPORT

Aspergillus endocarditis Presenting as Massive Peripheral Embolism Following Open Heart Surgery

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Fungal endocarditis is rare but potentially a lethal condition. Large bulky vegetations are common and can present as peripheral thromboembolism. We report a case of a 73-year-old man who had an uneventful aortic valve replacement and coronary artery bypass grafting. He was readmitted with embolic occlusion of lower limb vessels. This was treated with embolectomy. Investigations suggested a 'thrombus' in the ascending aorta, which during surgery revealed itself to be aspergillosis. Obtaining a histopathology of the removed embolus is often omitted in cases of embolic occlusion of lower limb arteries as the source is nearly always a thrombus. Uncommonly, infective endocarditis can be the source of peripheral embolism and hence histopathology and microbiology of the embolus should be obtained if it appears different as the prognosis is better if treated early and aggressively.

Keywords: Aspergillosis; Infective endocarditis; Embolism.

Introduction

Thromboembolic episodes after open heart surgery are not uncommon. The source of the embolus is usually a prosthetic valve. Infective endocarditis is another cause but cardiac fungal infections are rare and are usually associated with disseminated fungemia.[1–3] Immunosuppression, especially with corticosteroids is a major factor in developing infection.[2] The most common fungi to cause endocarditis are *Candida* (62%) and *Aspergillus* (18%). Fungal endocarditis results in large bulky vegetations and they often embolise.[2–5]

Report

A 73-year-old man underwent an uneventful aortic valve replacement and coronary artery bypass grafting in October 2003. In January 2004, he developed acute onset lower limb weakness, which was diagnosed to be due to saddle embolus in the abdominal aorta. He underwent an emergency embolectomy. The embolus was described as white and friable and was assumed to be originating from the aortic valve prosthesis. Echocardiogram, however, did not demonstrate the source of this embolus. He presented with another episode of saddle embolus within a week and underwent a repeat embolectomy. Further investigations, i.e. trans-oesophageal echocardiography (TOE) and thoracic CT scan revealed a large 'thrombus' in the ascending aorta nearly occluding the lumen extending into the arch (Fig. 1). Anticoagulation therapy was started immediately with view to arrest the progression of the thrombus. Four days later, patient had another episode of saddle embolism, which was confirmed on digital subtraction angiography (Fig. 2). Repeat TOE showed further progress of the 'thrombus'. Hence, a decision was taken to operate the patient with a view to replace the affected portion of the ascending aorta and remove the thrombus.

During the operation the 'thrombus' was found to be bulky, white, friable and was attached to the aortic wall (Fig. 3). It was sent for an urgent microbiology and histology, which confirmed the diagnosis of Aspergillosis. There was evidence of aortic destruction

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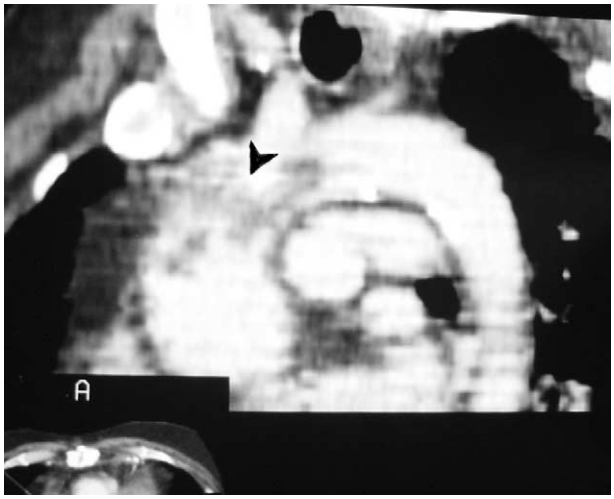

Fig. 1. CT scan of thorax showing near total occlusion of the ascending aorta with vegetations (arrow).

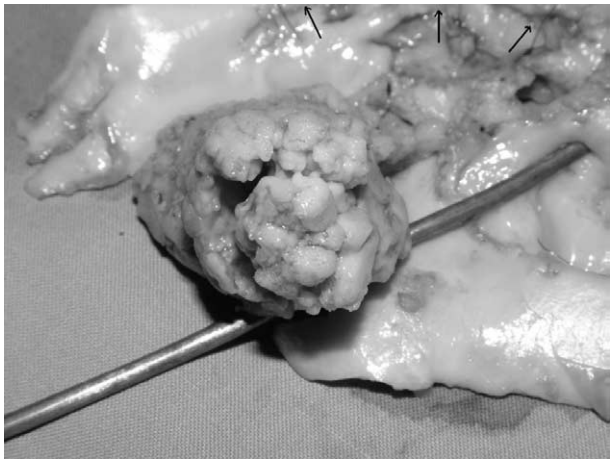

Fig. 3. Portion of excised aorta with bulky vegetations and evidence of suture destruction (arrows).

at the aortotomy closure site. The vegetations were localised to the ascending aorta and the proximal arch. Aortic prosthesis was free from vegetations. Ascending aorta and proximal arch was then excised and replaced with a prosthetic graft. Patient was started immediately on intravenous antifungal medication. Patient initially showed some signs of improvement, however, both lower limbs continued to deteriorate. Eventually, the patient died on the 18th post-operative day due to multi-system failure.

Discussion

Embolic occlusion of lower limb arteries after cardiac surgery is not uncommon.[2–5] As the source is nearly always a thrombus, obtaining a histopathology of the removed embolus may seem unnecessary. Investigations are then focused on finding the source of the thrombus and subsequently treat as necessary. Uncommonly, infective endocarditis and rarely fungal endocarditis can be the source of peripheral embolism.[2–5] Fungal endocarditis is not only rare but may not be associated with systemic features.[1–3]

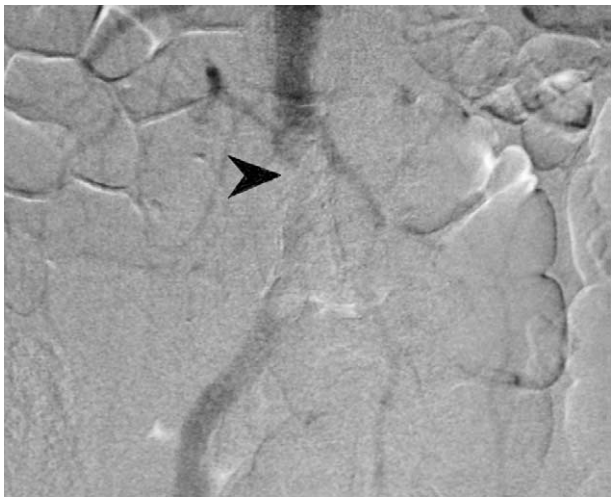

Fig. 2. Digital angiography of abdominal aorta demonstrating total occlusion with saddle embolus (arrow).

Cardiac fungal infections are almost always fatal.[1–4] The extent of the pathology seen depends on the virulence of the organism.[1–4] *Aspergillus* is a ubiquitous mould and several reports have linked the source to be operating room air-conditioning.[1,4] *Aspergillus* endocarditis rarely involves the native valves,[2] but has been observed to involve prosthetic valves, prosthesis and suture lines due to relative avascularity of the tissues involved.[1,3,5] Spores implanted during surgery can germinate later. Involvement results in large bulky vegetations, which can be missed for a thrombus. Embolisation to brain, eye, spleen and lower limb are the commonest initial manifestations. Invasive growth can lead to localised destruction with devastating results.

The clinical diagnosis of *Aspergillus* endocarditis is difficult due to non-specific symptoms. A review revealed the clinical features to be fever (72%), embolic episodes (69%), a new or changing murmur (41%), and sudden visual loss (13%).[5] Diagnosis is further made difficult by the fact that blood cultures are almost always negative. All too often, the diagnosis is made during operation as in our case or on the autopsy table.[1,4] Once the diagnosis is established the treatment options are either medical treatment, surgery or

a combination of the two. Prolonged therapy with amphotericin B alone, or in combination with 5-flucystosine or rifampicin are recommended.[3,4] Outcome is very poor but better with combined therapy. Early surgical excision of the vegetations along with all the tissue involved and if possible replacing them with homograft tissue is the best chance of avoiding local recurrence.[3] The overall reported survival of this devastating complication remains as low as 5%.[3–5]

This report thus highlights the importance of obtaining histopathology of the embolus after embolectomy, which would have established the diagnosis early.

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